

**Long Beach Utilities Department
Direct Install Gardens (DIG) Program**



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February 22, 2024

Bureau of Reclamation
Notice of Funding Opportunity R24AS00052

WaterSMART Grants: Water and Energy Efficiency Grants for FY 2024

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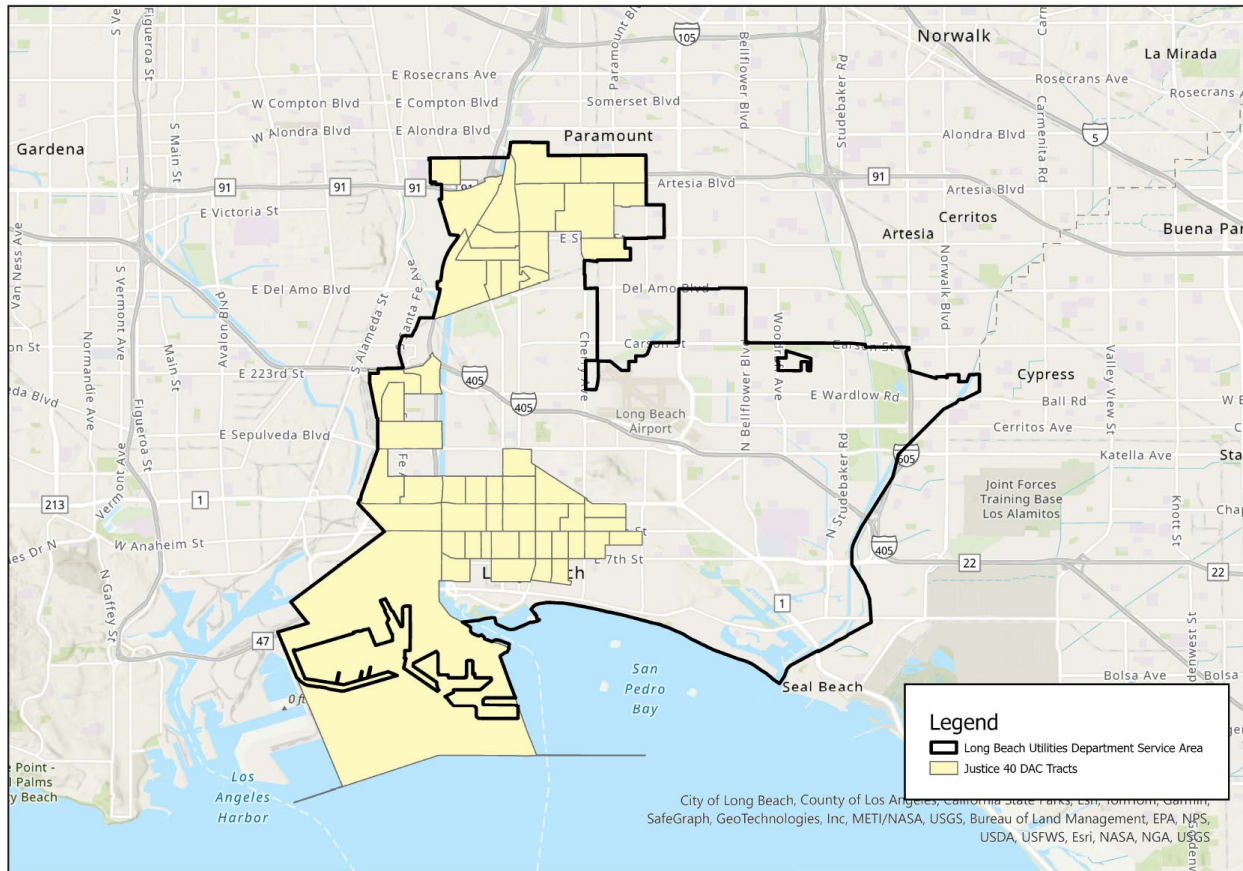
1. Technical Proposal and Evaluation Criteria

1.1. Technical Proposal: Executive Summary

| | |
|----------------------------|--|
| Date | February 22, 2024 |
| Applicant | Long Beach Utilities Department (LBUD) |
| City | City of Long Beach |
| County | Los Angeles County |
| State | California |
| Applicant Category: | Category A: Water District/local authority with water delivery authority |
| Project Summary | The Direct Install Gardens (DIG) program (project) provides a climate resilient landscape conversion free of charge. This project will target low-income residents who are living in historically underserved neighborhoods that have been impacted by environmental pollution. This program will convert a total of approximately 20,000 square feet of non-functional turf to waterwise landscapes, which result in an estimated water savings of 2.8 acre-feet of water per year (AFY). The DIG program focuses on sustainability, community investment, and improving water availability for the residents in the LBUD service area. |
| Project Schedule | The Project is scheduled to begin upon award of grant funds in October of 2025 and will run for approximately 2 years with an anticipated project completion date of October 31 st , 2027. |
| Federal Facility: | Federal facilities will not be eligible for Project funding. |

1.2. Technical Proposal: Project Location

The DIG program will be made available for residential property (customer sectors) within LBUD's service area. The program will prioritize disadvantaged communities (DACs) as identified by the White House's Justice40 tool. The specific target communities for the installation part of this project are located along the Interstate 710 corridor that have been found to be particularly vulnerable to the effects of climate change, as shown in Figure 1.



Long Beach Utilities Department - DIG Program Implementation Area & DAC Tracts
USBR FY24 WEEG Grants



Figure 1. Map of LBUD Water Service Area and DAC Locations

1.3. Technical Proposal: Technical Project Description

The DIG program is an on-going program curated by LBUD that removes turf grass and installs California climate resilient landscapes in the yards of customers free of charge. The landscapes are sustainable, highly efficient, environmentally friendly, and will dramatically reduce water use. By bringing these practices close to home, the DIG program will help to instill a climate wise culture in the City of Long Beach.

Historical participation in similar programs offered by LBUD such as the Lawn-to-Garden (L2G) program, which offered rebates for turf conversions, has come from customers outside DAC areas. Disadvantaged communities have experienced financial hurdles related to turf conversions due to high material and installation costs. By covering the entire cost of installment for residents, the benefits of waterwise gardens can be made available to those who are experiencing the greatest need in the LBUD service area.

The outdoor emphasis of this program is particularly important considering approximately 50% of residential water demand in the Long Beach Region is attributed to outdoor water use. Since the project has been active before having already installed 17 climate resilient gardens, removed 21,000 square feet of turf, and planted over 50 trees in the last 3 years, there is no start-up time required. DIG Program participants will have the opportunity to choose from various climate tolerant landscape styles depending on shade availability and lot type. Homeowners can select their preferred style at the time of the pre-inspection visit.

LBUD has developed the website [DIG- Design Templates – Long Beach Water Department \(lbwater.org\)](http://lbwater.org) for its DIG program to provide program information, and display potential landscape designs. The website was specifically developed to provide information to members of the public who are currently considering implementing turf replacement through the DIG program. Due to high demand and a lack of funds, the program will be put on hold if not provided with additional resources. Funding from the Bureau of Reclamation will enable the DIG program to continue to provide impactful water saving and climate resiliency opportunities to LBUD customers.

1.4. Technical Proposal: Evaluation Criteria

1.4.1. Evaluation Criterion A: Quantifiable Water Savings

Describe the amount of estimated water savings.

The project will lead to an estimated water savings of **2.8 AFY** per year.

Describe Current Losses:

In the Long Beach area, over half of a home's water use is allocated for landscaping, with up to 50% of that water potentially being wasted due to wind, evaporation, or runoff caused by inefficient sprinkler systems. Reducing water use and increasing irrigation efficiency minimizes dry weather runoff that flows into storm drains and receiving waters while also reducing pollutants that contribute to the impairment of watersheds.

Describe the support/documentation of estimated water savings.

Estimates for water saved from converting turf to water-efficient landscaping were made using an Evaluation of the Synthetic Turf Pilot Program by Metropolitan Water District of Southern California (MWD)¹. The MWD study found water savings of 0.00014 acre-feet per year (AFY) per square foot when turf was converted from natural to synthetic; MWD estimates that

¹ Metropolitan Water District of Southern California. 2007. Evaluation of the Synthetic Turf Pilot Program. Prepared for U.S. Department of the Interior's Bureau of Reclamation Southern California Area Office. Prepared by Metropolitan Water District of Southern California. August. Pg. 12.

conversion from turf to water-efficient landscaping is expected to save 0.00014 AFY per square foot.

This value was confirmed by California Urban Water Agencies (CUWA) in 2015 in Water Savings Study², which found that turf replacement projects with California Friendly landscaping in the Commercial, Industrial, and Institutional sectors achieved a water savings of 0.00014 AFY. The CUWA water savings data is based on existing turf replacement programs from the North Marin Water District and Southern Nevada Water Authority (from MWD).

Applicants proposing turf removal should address the following:

A. How have average annual water savings estimates been determined? Please provide all relevant calculations, assumptions, and supporting data.

As mentioned above, estimates for water saved from converting turf to water-efficient landscaping were made using two scientific studies; an Evaluation of the Synthetic Turf Pilot Program by MWD and a 2015 Water Savings Study by CUWA which found that that conversion from grass turf to water-efficient landscaping is expected to save 0.00014 AFY per square foot. This program plans to convert approximately 20,000 square feet of turf to water-efficient landscaping. At a savings of 0.00014 AFY per square foot, this would result in water savings of approximately 2.8 AFY or 14 AF over a project lifespan of 5 years or longer.

B. What is the total surface area of turf to be removed and what is the estimated average annual turf consumptive use rate per unit area?

The DIG program aims to convert 20,000 square feet of grass turf to California Friendly and native landscaping. The average consumptive use rate is estimated to be 25,500 gallons per year per an average of 1,000 sq. ft. residential home.

C. Was historical water consumption data evaluated to estimate average annual turf consumptive use per unit area? If so, did the evaluation include a weather adjustment component?

The consumptive use rate was calculated using the County of Santa Cruz's Estimated Total Water Use (ETWU) Calculator. The calculator uses the following equation:

$$\text{Annual gallons per hydrozone} = \text{ETo} \times \text{plant factor} \times 0.62 \times \text{hydrozone area} / 0.81 \text{ (or } .71)$$

Where:

- The plant factor is entered by the user for each hydrozone

² California Urban Water Agencies. 2015. CUWA Phase 1 Water Savings Study. Prepared by the California Urban Water Agencies. April. Pg. 10.

- The 0.62 multiplier converts inches per year to gallons per square foot per year.
- Irrigation efficiency is assumed to be 0.81 for drip and 0.71 for spray, the minimum efficiency required by the County ordinance.

The calculator adds up the gallons allowed for each hydrozone to find the total gallons allowed for the whole landscape. The calculator is weather adjusted, ETo (Evapotranspiration) is a measurement of multiple weather attributes, but mainly evaporation and transpiration for warm season turf in perfect consumptive conditions. The ETo value was calculated using historical LBUD water use data collected from similar projects from 2011 to 2022.

D. Will site audits be performed before applicants are accepted into the program?

Yes, LBUD will conduct a desktop audit for every application submitted for the DIG Program. Aerial Imagery and customer-submitted pre-conversion landscaping photos will be used to verify customer eligibility. Site visits will be conducted by LBUD staff for applicants whose eligibility cannot be verified through a desktop audit.

E. How will actual water savings be verified upon completion of the project?

Water savings will be verified upon project completion through comparisons of pre- and post-project water usage obtained from the customers’ billing information. Specifically, metered water use data comparisons will be performed within 12 months before installation and metered water use 12 months after installation. The water meter readings at the pre -and post-installation phases of project implementation will express the water savings with the subtraction of the average indoor household water use.

1.4.2. Evaluation Criterion B: Renewable Energy

Criterion B.2: Increasing Energy Efficiency in Water Management

A. If quantifiable energy savings is expected to result from the project, please provide sufficient details and supporting calculations. If quantifying energy savings, please state the estimated amount in kilowatt hours per year.

Conveying water to Southern California is notoriously energy-intensive, compared to other major metropolitan averages in the nation. This is largely due to pumping requirements for major conveyance systems which move large volumes of water over long distances and over thousands of feet in elevation lift. Some of the inter-basin transfer systems that LBUD relies upon for potable water, such as the Colorado River Aqueduct (CRA), require large amounts of electrical energy to convey water. On average, approximately 2,000 kWh is required to pump

one AF of water through the CRA to southern California³. Reduced reliance on imported water will avoid the extensive energy requirements associated with transporting water from Northern California and the Colorado River to Long Beach. Based on a 2005 report by the California Energy Commission⁴, 19% of California's electricity goes to water-related uses. To calculate the reduced energy costs associated with the project, the amount of energy required to treat and convey 2.8 AFY of water is multiplied by the 2,000 kWh/AF required to import water to Southern California; therefore, the project is estimated to result in 5,600 kWh/Y (28,000kWh over the project's 5-year life span) of savings. 20,000 square feet of turf to water-efficient landscaping.

B. How will the energy efficiency improvement combat/offset the impacts of climate change, including an expected reduction in greenhouse gas emissions.

Estimated greenhouse gas emission reductions are based on CARB's Greenhouse Emission Reduction Calculator for the California Department of Resources, which estimates the project will result in an annual reduction of 1.7 Metric Tons of CO₂e (8.5 tons of CO₂e over the project's estimated 5-year life span).

The emissions reductions are determined based on the California Electricity Grid Average Emissions Factor (2013), which estimates an emission rate of 0.000303 MTCO₂e per kWh. Based on the estimated energy savings of 5,000 kWh/Y, the project will reduce emissions by approximately 1.7 metric tons of CO₂e per year.

Carbon dioxide (CO₂) emissions are not the only emissions related to the delivery of imported water from Northern California and the Colorado River. In addition to Green House Gases, air pollutants nitrogen oxides (Nox) and sulfur dioxide (So₂) are emitted during energy production, though in much smaller quantities. The U.S. Environmental Protection Agency's Emissions & Generation Resource Integrated Database (eGRID) data was used to calculate the Nox and So₂ emissions per acre-foot of imported water. So₂ emissions for energy used in California are 0.00018 lbs. per kWh; Nox emissions are calculated at 0.00041 lbs. per kWh energy use. With an energy demand 2,000 kWh per AF of imported water and an estimated water savings of 2.8 AFY, a total of 1.0 lbs./AF/Y of So₂ emissions (5.0 lbs total), and 2.3 lbs./AF/Y (12 lbs total) of Nox emissions.

C. If the project will result in reduced pumping, please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements and energy usage?

³ Ernest Orlando Lawrence Berkeley Laboratory, California Institute for Energy Efficiency. 2000. Methodology for analysis of energy intensity of California Water Systems. Pg. 6.

⁴ California Energy Commission. 2013. *California's Water – Energy Relationship*. Pg. 8

The project will reduce pumping from the Bay-Delta (via the 441-mile California Aqueduct) and the CRA. The CRA utilizes five major pumping plants to transport water across its route. Each of the pumping plants is equipped with nine pumps, each capable of handling a nominal rated capacity of at least 225 cubic feet per second.

This project will achieve a significant reduction in the need for imported water, which will help reduce the high energy costs that are a result of transporting this water. The water that is conserved also avoids local energy costs for treatment, pumping and disposal. An energy savings of 5,600 kWh can be attributed to reduced pumping needs, based on the California Energy Commission⁵ report.

D. Please indicate whether your energy savings estimate originates from the point of diversion, or whether the estimate is based upon an alternate site of origin.

Energy savings are associated with reduced pumping costs from the point of diversion.

E. Does the calculation include any energy required to treat the water, if applicable?

The presented energy calculation is solely based on reduced pumping needs from the CRA to LBUD's service area.

F. Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions? Please provide supporting details and calculations.

The project will not result in reduced vehicle miles driven.

G. Describe any renewable energy components that will result in minimal energy savings/production (e.g., installing small-scale solar as part of a SCADA system).

The project does not have any renewable energy components.

1.4.3. Evaluation Criterion C: Other Project Benefits

Resilience and Sustainability Benefits

A. Explain and provide detail of the specific issue(s) in the area that is impacting water resilience and sustainability.

California regularly faces extreme water crises due to oscillating drought conditions that continue to become more severe in tandem with historic rises in temperature that are attributed to climate change. The 12-month period between October 2020 and September 2021 was the driest in over a century, while the summer in 2021 was the hottest summer ever on record. The dire water conditions required California state officials to impose a 15% cut back

⁵ California Energy Commission. 2013. *California's Water – Energy Relationship*. Pg. 8

on potable water use in July 2021. Water use only decreased by 5% in August 2021, falling short of the 15% goal.

Water availability can vary seasonally, especially in Southern California, a region with distinct wet and dry seasons. During times of drought or reduced rainfall, water rights might be curtailed to preserve limited resources, affecting the amount of water available to LBUD and, by extension, its customers.

In 2022, the Long Beach Water Commission proposed moving to Stage 2 water shortage, which includes limiting landscape irrigation to two days per week throughout the year, a level of restriction not seen since June 2016. Additionally, the city faced the possibility of further restrictions depending on directives from state and regional water authorities. These measures reflect the ongoing challenges of managing water resources amid prolonged drought conditions in the region.

On March 31, 2022, Governor Gavin Newsom issued an executive order imposing mandatory water restrictions, while also asking the State Water Board to prepare municipal water agencies for drought restrictive measures to account for a water shortage level of up to 20%. The Governor has also ordered state agencies to submit funding proposals to support the state's short- and long-term drought response. Some of these restrictions are still active today.

Moreover, in June 2022, the commissioner for the Bureau of Reclamation informed states in the Colorado River Basin that they have 60 days to create an emergency plan to stop using between 2 and 4 million acre-feet of water in the next year. The Colorado River has been severely impacted by drought conditions throughout the Western United States, with water supplies being threatened for agriculture, fisheries, ecosystems, industries, and municipal retailers.

B. Explain and provide detail of the specific issue(s) in the area that is impacting energy sustainability, such as reliance on fossil fuels, pollution, or interruptions in service.

Among the tracts eligible for DIG funding, many are located along the 710 Freeway, which is heavily impacted by emissions related pollution from the Port of Long Beach and Port of Los Angeles. On October 13, 2021, President Biden directed both ports to move towards 24/7 operations to offset the supply chain disruptions associated with COVID-19. With significant increases in cargo ship movement, port emissions could increase by approximately 40%, further impacting the already impacted census tracts around the 710 Freeway.

Coupled with imminent fire danger, rising temperatures, and on-going electrical blackouts due to overwhelming demand on the electrical grid, the region is in dire need of secure energy and water sustainability. The DIG program will provide reduced energy demand by decreasing the

reliance on imported water supplies and limiting the energy consumption associated with pumping water down to Southern California from the CRA and the Sacramento-San Joaquin Rivers Delta.

C. Please describe how the project will directly address the concern(s) stated above.

In addition to providing 2.8 AFY of water savings through water efficient devices, the project is also intended to promote long-term changes in norms and behaviors related to outdoor water use, resulting in increased water use efficiency, less dependence on imported water, and an enhanced awareness and sense of responsibility toward the stewardship of Southern California's limited water supplies.

In a recent study conducted by MWD^[1], it was determined that for every 100 participants in similar programs, an additional 132 parcels converted their turf. These changes were associated with participants opting to apply for turf conversion programs after noting the benefits realized by neighbors who had received turf conversions.

D. Will the project directly result in more efficient management of the water supply? For example, will the project provide greater flexibility to water managers, resulting in a more efficient use of water supplies?

Water conserved from this project will result in decreased imported water from strained resources in the Colorado River Basin and the Sacramento-San Joaquin Bay-Delta. The project will also contribute to increased local water supply reliability for the Long Beach region, making water supplies available during extreme dry periods. Water savings will remain in storage for other local uses, reducing demand for additional imported water.

E. Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

2.8 AFY of conserved water will remain in the CRA, while also allowing MWD to meet its delivery obligations to its 26 member agencies in Southern California.

Ecological Benefits

A. Will the project benefit species (e.g., federally threatened or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply,

and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).

Through the water savings experienced by this project, LBUD will help to place less of a burden on the California Bay-Delta, which will assist in the alleviation of stress placed upon the delicate ecosystem and its inhabitants in the Bay-Delta. The Bay-Delta is home to the Delta Smelt, which has been protected by the courts since 2007. In addition to the Delta Smelt, the Bay-Delta is home to other species, such as the spring- and winter-run Chinook salmon, that are threatened and therefore garner protected status. LBUD will help to improve the habitat for these vulnerable species by making more water available through the conservation achieved by the DIG Program. Native landscapes created by the DIG program will also provide habitat for local birds and bugs.

B. Will water remain in the system for longer periods of time? If so, provide details on current/future durations and any expected resulting benefits (e.g., maintaining water temperatures or water levels).

LBUD will reduce their import needs by 2.8 AFY of water from Metropolitan Water District (MWD) through the Colorado River Aqueduct and the Sacramento-San Joaquin Bay Delta, thereby allowing this water savings to remain in the system for other neighboring agencies to meet their allocation and distribution requirements during on-going drought conditions in California.

C. Will the proposed project reduce the likelihood of a species listing or otherwise improve the species status?

It is not likely that this project will change the listing status of a species.

D. Please describe any other ecosystem benefits as a direct result of the project.

Through the water savings and energy reductions that the DIG program offers, the project will result in less demand for LBUDs imported water resources. The saved water supply will be available for other users elsewhere in the State of California. Fresh water will remain in the rivers and streams of origin if demand does not increase, helping to maintain or restore delicate ecosystems. This reduction in water use will also provide benefits to the local ecosystem since less water will be lost to wastewater collections and ocean outfalls to the Pacific Ocean. Runoff from overspray and irrigation typically contains various pollutants (pesticides, fertilizers, motor oil, soils, and other dissolved substances) that enter the storm drain system untreated. Conversions made through the DIG program will minimize pollutant runoff associated with irrigation across residential, CII and municipal sectors.

In addition to the Bay-Delta ecosystem benefits, the DIG program will also lessen the impacts on the ocean outfall discharge. Since this will reduce the amount of water being used per-capita, the wastewater treatment systems and outfall discharges will also see a reduction. These conditions ultimately lead to less water being discharged through the ocean outfall to the Pacific Ocean.

Estuarial and other aquatic habitats may be protected by decreasing the irrigation water that brings pesticides, organic waste, and other elements into the waterways via the storm drain system. By decreasing the amount of irrigation water that enters the storm drain system (bringing with it pesticides, organic waste, and other elements into our waterways), the Region's surface water quality will be improved.

Climate Change

A. Describe how the project addresses climate change and increases resiliency. For example, does the project help communities adapt to bolster drought resilience?

California's on-going water crisis, coupled with rapid water supply demand due to increased population growth further emphasizes the need for water conservation programs like the DIG program. This project aims to directly respond to climate change impacts to the region by converting 20,000 square feet of grass turf to California Friendly, drought resilient landscape that will offset the need to import 2.8 AFY through the CRA and California Bay-Delta. Currently, imported water purchases from MWD account for about 40% of LBUD's overall water supply. Therefore, this program will offset 2.8 AFY of current imported water demand and contribute an equal amount towards water supply reliability. This program will allow California to mitigate the newest drought cycle, while also laying the foundation for a water-wise culture for the foreseeable future. It will also help communities adapt and prepare for future water restrictions.

B. Does the project seek to improve ecological resiliency to climate change?

The DIG Program indeed targets enhancing ecological resiliency against the backdrop of climate change by encouraging the adoption of California climate-resilient landscapes within residential settings. The project shifts the approach to urban landscaping from traditional, water-intensive turf grass to drought-tolerant, sustainable designs. By doing so, it not only aims to drastically reduce water consumption—a critical aspect in the face of increasing water scarcity due to climate change—but also enhances urban biodiversity, supports soil health, and mitigates the urban heat island effect. The introduction of California native plants as part of these landscapes plays a vital role in providing habitats for local wildlife, thereby fostering a biodiverse urban ecosystem that can better withstand and adapt to changing climate conditions. Furthermore,

the program's efforts to educate and involve the community in sustainable landscaping practices underscore a holistic approach to building climate awareness and resilience.

C. Does the proposed project seek to reduce or mitigate climate pollutions such as air or water pollution?

This project will reduce pollutant runoff by removing the need to irrigate and fertilize 20,000 square feet of turf. Additionally, based on CARB's Greenhouse Emission Reduction Calculator for the California Department of Resources, the DIG program will result in an annual reduction of 1.7 Metric Tons of CO₂e (8.5 tons of CO₂e over the project's estimated 5-year life span), 1.0 lbs of So₂ per year (5.0 lbs total), 2.3 lbs Nox emissions (12 lbs total).

D. Does the proposed project include green or sustainable infrastructure to improve community climate resilience?

The DIG Program exemplifies an initiative that integrates green and sustainable infrastructure to bolster community resilience against climate change. By converting traditional lawns into water-efficient, California climate-resilient landscapes at no cost to homeowners, this program directly contributes to sustainable urban development. These landscapes are designed not only to reduce water usage significantly by replacing water-intensive turf grass but also to enhance local biodiversity through the introduction of native plants and drought-tolerant species.

Moreover, these landscapes can improve soil health, increase carbon sequestration, and reduce stormwater runoff, further contributing to the mitigation of climate change impacts and enhancing urban resilience.

The emphasis on community engagement and education within the DIG Program ensures that the benefits of green infrastructure are widely understood and adopted, fostering a culture of sustainability and resilience. By making these practices accessible to all, especially disadvantaged communities, the program ensures equitable improvements in climate resilience across the community. Through initiatives like the DIG Program, urban areas can become more adaptive to climate-related challenges, demonstrating the critical role of green and sustainable infrastructure in building resilient communities.

Does the proposed project contribute to climate change resiliency in other ways not described above?

The Program is likely to benefit various sectors within its geographic area. By promoting water efficiency and conservation, it can positively impact the environment, reducing the strain on local ecosystems. This, in turn, supports sectors like agriculture, which rely heavily on water availability, by potentially ensuring a more stable water supply. Additionally, efficient water

management can enhance recreational activities and tourism, especially in Long Beach, where water-based leisure is important, by sustaining the health of lakes, rivers, and beaches.

1.4.4. Evaluation Criterion D: Disadvantaged Communities, Insular Areas, and Tribal Benefits

Disadvantaged Communities

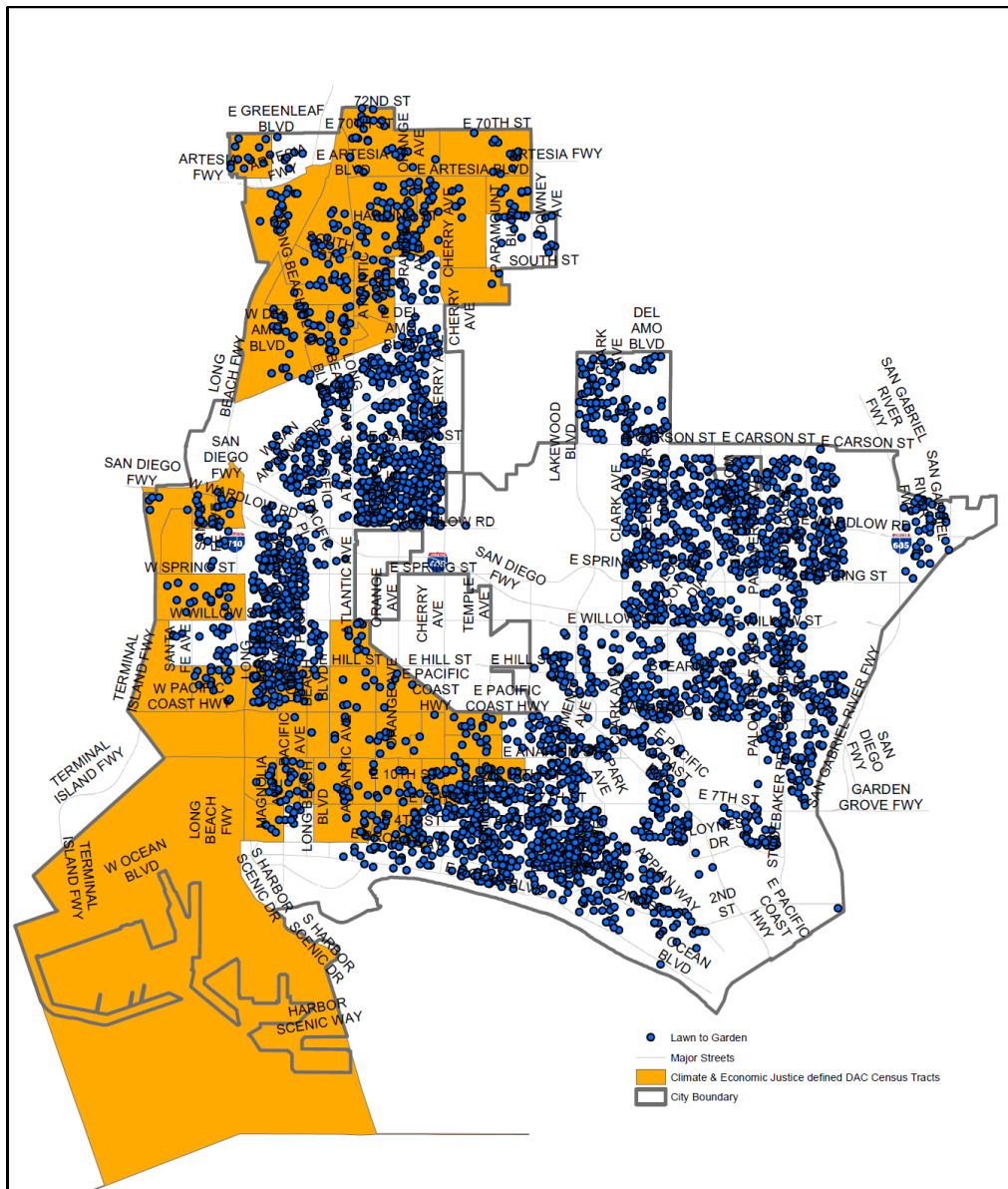
A. Please use the White House Council on Environmental Quality’s interactive Climate and Economic Justice Screening Tool (CEJST), available online at Explore the map Climate & Economic Justice Screening Tool (screeningtool.geoplatform.gov/en/#17.59/36.63278/-105.181329) to identify any disadvantaged communities that will benefit from your project. The CEJST developed by the White House Council on Environmental Quality is a geospatial mapping tool that utilizes publicly available, nationally consistent data sets related to climate change, the environment, health, and economic opportunity to identify disadvantaged communities. In addition to identifying specific census tracts that are disadvantaged, the CEJST includes the lands of Federally recognized Tribes as disadvantaged communities. In addition, regardless of whether a Federally recognized Tribe has land, all Federally recognized Tribal entities are considered disadvantaged communities for the purposes of the Justice40 Initiative.²

The DIG will prioritize applicants located in DACs identified by the Justice40 tool. The specific target communities for the installation part of this project are located along the Interstate 710 corridor that have been found to be particularly vulnerable to the effects of climate change. This is outlined in Figure 1.

B. If applicable, describe how the proposed project will serve or benefit a disadvantaged community, identified using the tool. For example, will the project improve public health and safety by addressing water quality, add new water supplies, provide economic growth opportunities, or provide other benefits in a disadvantaged community?

The DIG project will prioritize homes in disadvantaged communities identified by the CEJST, a scoring system that considers population characteristics and pollution burdens of each evaluated census tract to identify the most at-risk disadvantaged areas, within LBUD’s service area. The program will also prioritize sub applicants based on the SB 535 disadvantaged communities tool. Both tools have identified many locations in Long Beach, especially along the 710 corridors, as disadvantaged based on their income, pollution exposure, and life expectancy. Sub-applicants will be asked to submit relevant paperwork to identify their economic qualifications.

Residents with financial insecurity are typically less likely to participate in standard rebate-style turf replacement programs due to the financial hurdles associated with upfront material and installment costs. As shown in Figure 2, historical participation in similar programs offered by LBUD such as the Lawn-to-Garden (L2G) program has predominantly come from customers outside DAC areas. By covering the entire cost of installment for choice residents, the benefits of waterwise gardens can be made available to those who need it most in the City of Long Beach. Project implementation will enable residents in these units to effectively meet State mandated water conservation goals, while also receiving much needed upgrades to water-hungry landscaping.



Disclaimer: This map and/or data are not an official record of LBUD. It is compiled from data furnished by private contractors and other sources. Locations, dates of geographic features and facilities shown are based on these sources. This information is limited in scope as a disclaimer. LBUD does not assume any responsibility for its accuracy or completeness.

Figure 2. Location of L2G Program Participants

Communities, disproportionately in DAC locations, have also been burdened by pollution and population characteristics that make them more sensitive to pollution. Many of the DACs identified in Figure 2 above would be considered disadvantaged not just due to their low income, but their exposure to legacy pollutants. Having climate friendly landscapes close to home will help mitigate pollution exposure by decreasing the use of harmful fertilizers, herbicides and pesticides and sequestering CO2.

Tribal Benefits

A. Does the proposed project directly serve and/or benefit a Tribe? Will the project increase water supply sustainability for an Indian Tribe? Will the project provide renewable energy for an Indian Tribe?

Indigenous Americans in Long Beach, which primarily belong to the Tongva Tribe, have the lowest median income (\$32,866) when compared to other racial/ethnic groups in the LBUD service area, with 82% residing in DAC areas as identified by the Justice40 tool and SB535. The DIG program will directly support water sustainability for Indigenous Americans in these areas by prioritizing Native American applicants. This action will lead to less water loss and water consumption overall, leading to a decrease in the overall demand on the water supply system, thereby making it more sustainable going forward.

B. Does the proposed project support Tribal led conservation and restoration priorities, and/or incorporate or benefit indigenous traditional knowledge and practices?

Indigenous Americans in California have practiced more sustainable landscaping and emphasized the importance of keeping native climate friendly plants close to home through a belief in Kincentric Ecology. This project will help to share and spread these cultural values within the LBUD service area.

C. Does the proposed project directly support tribal resilience to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, increased renewable energy, or economic growth opportunities? Does the proposed project support Reclamation's Tribal trust responsibilities or a Reclamation activity with a Tribe?

The DIG program will prioritize residents in the LBUD service area that are identified as members of the Tongva tribe. This will help tribal members effectively meet State mandated water conservation goals, while also receiving much needed upgrades to water-hungry landscaping. This program will also enable local tribal resilience to climate change and drought generally, by limiting excessive water use and decreasing demand on imported water, which

will create a reliable water supply for the region given on-going extreme drought and climate change crises.

1.4.5. Evaluation Criterion E: Completing On-Farm Irrigation Improvements

The project does not directly benefit any on-farm irrigation improvements.

1.4.6. Evaluation Criterion F: Readiness to Proceed

Identify and provide a summary description of the major tasks necessary to complete the project.

The project is essentially shovel-ready upon authorization of grant funding. The project will primarily be executed by homeowners and third-party contractors.

Interested residents will be able to apply for the program through the DIG website, which is already established and operational: lbwater.org. Once applicant eligibility is verified, LBUD will work with the customer to move forward with installation by first visiting the resident and agreeing on a design template and site plan based on the conditions of the yard. LBUD will be responsible for tracking all costs. Upon project completion, LBUD staff inspect conversion sites and verify compliance with project guidelines. Water use data will be recorded before and after garden installation at each site.

The project will be open to applicants until available funds are expended, which is expected to be diminished by May 2027. Residents will be responsible for maintaining their newly constructed landscapes for 5 years. This will be monitored/enforced by LBUD. If residents are struggling to maintain their newly constructed landscapes or do not have the means, LBUD will step in to assist by working with the customer to create a management plan.

Describe any permits that will be required, along with the process for obtaining such permits.

No permits are required to execute the project.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

Landscape designs that are tailored to yard conditions, such as the level of shade and the soil type, will be created for each selected resident.

Describe any new policies or administrative actions required to implement the project.

There are no new policies or administrative actions required to implement the project.

Describe the current design status of the project. If additional design work is required prior to construction, describe the planned process and timeline for completing the design work.

Three example garden designs have already been completed. Once project locations are identified, a third-party contractor will work with the homeowner to complete the garden design. This will take approximately one month after the project has been identified.

Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. Milestones may include, but are not limited to, the following: complete environmental and cultural compliance; mobilization; begin construction/installation; construction/installation (50% complete); and construction/installation (100% complete). Was the expected timeline for environmental and cultural compliance discussed with the local Reclamation regional or area office?

A project schedule is displayed below in Table 1.

Table 1. Proposed Project Schedule

| Task | Anticipated Completion Date |
|--|-------------------------------|
| Advertise Project to Eligible Customers | November 2025 |
| Turf Conversions (at eligible properties) | December 2025 – November 2027 |

1.4.7. Evaluation Criterion F: Collaboration

Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?

The project is supported by the City of Long Beach and Metropolitan Water District. LBUD has experience implementing the DIG program and has extensive experience implementing similar programs such as the L2G program. The project will be executed independently by LBUD but will directly align with multiple water and energy conservation goals outlined by agencies throughout the Southern California Region. LBUD will also rely on various neighborhood and homeowner associations (HOAs) for this continuation of the DIG program to promote the project and ensure participation from the targeted DAC census tracts identified through CEJST.

What is the significance of the collaboration/support?

Regional support from MWD, in tandem with local community support from HOAs and neighborhood associations will ensure the DIG program is successful in contributing towards various local, state, and federal water conservation targets. The DIG program will be a step in fostering a water conservation mindset in LBUD communities, promoting a united and action-oriented community that can now be active participants in mitigating the effects of the on-going drought and climate change predicaments.

Will this project increase the possibility/likelihood of future water conservation improvements by other water users?

Given that the DIG program will be offered to rate payers within LBUD’s service area, customers will be incentivized to form water conservation habits to maximize future reductions to their water bill. Once a behavior becomes a habit, it is more likely to continue, and helps to foster a culture of water-wise behavior beyond those individuals directly receiving rebates. Those habits will be spread to others through community interactions.

LBUD has hosted a turf conversion resource festival including a self-guided tour of hand-selected participants who have participated in turf conversion programs held through the LBUD. These homes included turf conversions to waterwise gardens of different plant palette designs as well as different stages of establishment. The self-guided tour and the resource fair allows interested residents to have peer-to-peer guidance from past participants, to attend workshops related to turf conversion, and to learn about other available City and local resources available to them throughout the turf conversion process.

Social norm-based observations have also been shown to greatly impact project participation. A recent MWD study determined that for every 100 participants in turf conversion programs, an additional 132 parcels converted their turf based on observations, showing that there is potential for a “snowball” effect to exponentially increase program participation.

Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

The project will directly impact all LBUD customers. The water conserved through the project will promote a secure water supply for multiple sectors and users throughout the Southern California region.

Please attach any relevant supporting documents (e.g., letters of support or memorandum of understanding).

Letters of support from the Metropolitan Water District of Southern California, the California Water Efficiency Partnership, the Alliance for Water Efficiency, and the Wrigley Association are included in Section 4 below.

1.4.8. Evaluation Criterion H: Nexus to Reclamation

LBUD’s potable water resources include groundwater pumped from the Central Basin and imported water obtained from the Colorado River and Delta purchased from MWD. MWD imports water from the Colorado River via the CRA which relies on Reclamation facilities to deliver water to its member agencies in Southern California. Specifically, Reclamation owns and

operates the Parker Dam which is used to operate Lake Havasu at sustainable levels and to ensure the delivery of Colorado River water to Southern California water agencies such as MWD and sub-agencies, such as LBUD. MWD diverts water from the Colorado River at Lake Havasu to its Southern California customers, including LBUD, via the CRA. Lastly, LBUD had a partnership with Reclamation and the Los Angeles Department of Water & Power (LADWP), and together operated the country’s largest seawater desalination research facility for exploring the feasibility of the “Long Beach Method” which could reduce desalination energy requirements by 20 to 30 percent. Currently, the desalination facility is not active and is not a cost-effective option for water supply reliability due to high energy costs, but it may become a more relevant water resource asset in the future. The DIG program serves to reduce the City’s demand on imported water, which will result in reduced burden to Reclamation facilities as well.

1.5. Technical Proposal: Performance Measures

LBUD keeps detailed and accurate accounts of water use in its service area. LBUD proposes to validate the water conservation achieved by the project by comparing the annual water usage at the turf conversion sites before project implementation and after project implementation. Water conservation attributable to the DIG program will be measured directly through consumptive water use measured before and after turf conversions. Specifically, the amount of water being used in these locations before and after implementation of the project will be tracked and recorded on an annual basis.

2. Project Budget

2.1. Budget Proposal and Funding Plan

LBUD proposes to fund the non-Federal share of the project costs through the following:

- LBUD general fund (allocated for FY23)

The cost sharing breakdown is provided below in Table 2. The proposed funds will be secured and allocated for the DIG program by LBUD prior to the grant award date.

Table 2. Project Funding Breakdown by Source

| Funding Sources | Percent of Project Cost | Funding Amount |
|--------------------------------|-------------------------|----------------|
| Non-Federal Entities | | |
| LBUD General Fund | 50% | \$200,000 |
| <i>Non-Federal subtotal:</i> | 0% | \$0 |
| Other Federal entities | | |
| N/A | 0% | \$0 |
| <i>Other Federal subtotal:</i> | 0% | \$0 |

| Funding Sources | Percent of Project Cost | Funding Amount |
|---------------------------------------|-------------------------|------------------|
| Requested Reclamation funding: | 50% | \$200,000 |
| Total project funding: | 100% | \$400,000 |

The total project costs are displayed in Table 3.

Table 3. Total Project Costs

| Source | Amount |
|---|------------------|
| Costs to be reimbursed with the requested Federal funding | \$200,000 |
| Costs to be paid by LBWD | \$200,000 |
| Value of third party contributions | \$0 |
| TOTAL PROJECT COST | \$400,000 |

2.3. Budget Narrative

Personnel

No additional funding is requested for salaries and wages associated with the project. LBUD will use operating funds to provide program implementation, marketing, grant administration and reporting that will not be applied as direct costs to the project.

Fringe Benefits

Not applicable to this project.

Travel

Not applicable to this project.

Equipment

Not applicable to this project.

Supplies

Not applicable to this project.

Contractual

This project will be completed by three contractors, one for turf removal, one for landscape design, and one for landscape construction. LBUD is currently performing a pilot program in partnership with the Conservation Corps of Long Beach (CCLB). Depending on the program's success, CCLB may be used again to complete the landscape construction. If not, the contract for landscape construction will be selected through a competitive bidding process. Third party

contractors will be selected to complete the landscape designs and turf removal through a competitive bidding process.

Third-Party In-Kind Contributions

Not applicable to this project.

Environmental and Regulatory Compliance

Not applicable to this project.

Other Expenses

Not applicable to this project.

Indirect Costs

Not applicable to this project.

3. Pre-Award Costs

Not applicable to this project.

4. Environmental and Cultural Resource Compliance

No documents are required for environmental and cultural compliance for this project.

5. Required Permits and Approvals

No permits will be required for LBUD to execute the project.

6. Overlap or Duplication of Effort Statement

There is no known overlap or duplication of effort associated with the project.

7. Conflict of Interest Disclosure Statement

No known actual or potential conflicts of interest exist at the time of this application.

8. Uniform Audit Reporting Statement

LBUD acknowledges the requirement for a Single Audit report and has/will continue to comply with this requirement.

9. Letters of Support

LBUD has received letters of support from the Metropolitan Water District of Southern California, the California Water Efficiency Partnership, the Alliance for Water Efficiency, and the Wrigley Association. These letters can be found in Appendix A.

10. Letters of Partnership

Not applicable to this project.

11. Official Resolution

An official resolution will be provided within 30 days of receiving the award.

12. Unique Entity Identifier and System for Award Management

The City of Long Beach maintains active registration in the System for Award management (SAM) under Unique Entity ID F5PEFL6NGJQ4.

Appendix A: Letters of Support



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

February 8, 2024

Christina Munoz
WaterSMART Grants Program Coordinator
US Bureau of Reclamation
PO BOX 25007, MS 84-27133
Denver, CO 80225

Letter of Support for Long Beach
Utility Department's Direct Install Garden's (DIG) USBR 2024 WEEG Grant Application

The Metropolitan Water District of Southern California's (Metropolitan) wishes to express support for Long Beach Utility Department's (LBUD) application to the Bureau of Reclamation's (USBR) Water and Energy Efficiency Grant (WEEG) for Fiscal Year 2024 to support LBUD's Direct Install Gardens Program (DIG Program).

Metropolitan, in partnership with local water agencies, supports investment in drought-resilient programs and resources to develop and manage more sustainable water supplies for millions of Southern California businesses and residents. The unprecedented severity of California's recent drought, the long-term shortage on the Colorado River, and the projected impacts of severe climate change underscore the need for continued diversification of Southern California's water resource portfolio.

LBUD's DIG Program will improve regional water reliability by converting 20,000 square feet of turf to climate-resilient gardens, saving approximately 2.8 acre-feet of water per year. The free water-wise landscape conversions will help residents reduce water consumption and lower water bills, and provide environmental restoration, green job opportunities, urban beautification and cooling effects, air quality improvements, and carbon sequestration to help mitigate effects of climate change on the local environment.

Metropolitan supports LBUD's application for USBR 2024 WEEG funding for the DIG program, which will help Southern California build supply reliability for future generations in a sustainable and cost-effective manner. Please contact Gary Tilkian at 213-217-6088 or via e-mail at gtilkian@mwdh2o.com if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Goshi".

Brandon Goshi
Interim Manager, Water Resource Management Group

GT:rh



A Chapter of the Alliance *for* Water Efficiency

January 30, 2024

Christina Munoz
WaterSMART Grants Program Coordinator
US Bureau of Reclamation
PO BOX 25007, MS 84-27133
Denver, CO 80225

Subject: Support for LBUD Direct Install Gardens USBR 2024 WEEG Grant Application

The California Water Efficiency Partnership is pleased to support the Long Beach Utilities Department's application for funding under Reclamation's Water and Energy Efficiency Grant Program.

The LBUD Direct Install Gardens Program (DIG) will provide free water-wise landscape conversions to residents within the LBUD service area to reduce water consumption, lower consumer water bills, and mitigate climate change effects. This program will prioritize vulnerable residential communities that are currently experiencing negative health impacts intensified by climate change. These impacts include higher rates of respiratory illness and cardiovascular disorders that are exacerbated by increasing temperatures, pollution, and severely limited greenspace.

Climate change has a disproportionate impact on urban disadvantaged and severely disadvantaged communities that do not have access to proportionate open spaces with urban forests or greenery, as well as communities that are adjacent to mass transportation/transit, such as the communities within the I-710 corridor in the project area. This project will provide environmental justice to these communities.

Turf removal is a growing response to the State of California's water crises. This phase of the DIG program will convert 20,000 square feet of turf to climate resilient gardens and save approximately 2.8 acre-feet of water per year. In addition to water savings, this program provides environmental restoration, climate resilience, green job opportunities, beautification, urban cooling effects, air quality improvements, and carbon sequestration to help mitigate the effects of climate change on the local environment.

We urge Reclamation to consider LBUD's timely grant proposal.

Sincerely,

A handwritten signature in black ink that reads "Sarah Foley".

Sarah Foley
Executive Director, Operations

January 31, 2024



Christina Munoz
WaterSMART Grants Program Coordinator
US Bureau of Reclamation
PO BOX 25007, MS 84-27133
Denver, CO 80225

Subject: Letter of Support for LBUD's Direct Install Garden's (DIG) USBR 2024 WEEG Grant Application

The Alliance for Water Efficiency is pleased to provide this letter in support of the Long Beach Utilities Department's (LBUD) Bureau of Reclamation's (UBSR) Water and Energy Efficiency Grant for Fiscal Year 2024 in support of the Direct Install Gardens (DIG) Program (Project).

The DIG program will provide water-wise landscape conversions free to residents within the LBUD service area to reduce water consumption, lower consumer water bills, and mitigate climate change effects. This program will prioritize particularly vulnerable residential units whose inhabitants are currently experiencing negative health impacts such as higher rates of respiratory illness and cardiovascular disorders, which are exacerbated by increasing temperatures, pollution, and severely limited greenspace characterizing the surrounding environment, all of which will be intensified by climate change.

The Project addresses the environmental justice issue of the disproportionate impact climate change has on urban disadvantaged and severely disadvantaged communities that lack access to proportionate open spaces with urban forests or greenery, as well as communities adjacent to areas of mass transportation/transit, such as the communities within the I-710 corridor.

Turf removal is a growing response to the State of California's water crises. This round of the DIG program will convert 20,000 square feet of turf to climate-resilient gardens, which will save approximately 2.8 acre-feet of water per year. In addition to water savings, this program provides environmental restoration, climate resilience, green job opportunities, beautification, urban cooling effects, air quality improvements, and carbon sequestration to help mitigate the effects of climate change on the local environment. Program demand continues to outstrip the Department's existing financial allocations.

We urge the Bureau of Reclamation to consider LBUD's timely grant proposal. Should additional information about LBUD DIG's program be required, please send me an email at ron@a4we.org.

Sincerely,

A handwritten signature in blue ink that reads "Ron Burke".

Ron Burke, President and CEO
Alliance for Water Efficiency



P.O. Box 16192, Long Beach, CA 90806
wrigleyassociation@gmail.com

February 15, 2024

Christina Munoz
WaterSMART Grants Program Coordinator
US Bureau of Reclamation
PO BOX 25007, MS 84-27133
Denver, CO 80225

Subject: Letter of Support for LBUD's Direct Install Garden's (DIG) USBR 2024 WEEG Grant Application

Wrigley Association is pleased to provide this letter in support of the Long Beach Utilities Department's (LBUD) Bureau of Reclamation's (UBSR) Water and Energy Efficiency Grant for Fiscal Year 2024 in support of the Direct Install Gardens (DIG) Program (Project).

The DIG program will provide water-wise landscape conversions free to residents within the LBUD service area to reduce water consumption, lower consumer water bills, and mitigate climate change effects. This program will prioritize particularly vulnerable residential units whose inhabitants are currently experiencing negative health impacts such as higher rates of respiratory illness and cardiovascular disorders, which are exacerbated by increasing temperatures, pollution, and severely limited greenspace characterizing the surrounding environment, all of which will be intensified by climate change.

The Project addresses the environmental justice issue of the disproportionate impact climate change has on urban disadvantaged and severely disadvantaged communities that do not have access to proportionate open spaces with urban forests or greenery as well as communities that are adjacent to areas of mass transportation/transit, such as communities like ours within the I-710 corridor.

Our Mission: The Wrigley Association is a 501 C4 non-profit organization, (CA State ID # 1673284) whose mission is to promote the common interest, instill pride, establish and encourage the highest standards in Wrigley. To foster an active understanding of citizenship and civic responsibility. To oppose and discourage discrimination and to create a sense of belonging. To promote higher business standards and encourage uniformity and cooperation among merchants, property owners and residents. To eliminate crime, promote community pride, and develop wholesome, enjoyable, cultural, social, and physical activities.

Turf removal is a growing response to the State of California's water crises. This round of the DIG program will convert 20,000 square feet of turf to climate resilient gardens which will save approximately 2.8 of acre-feet of water per year. In addition to water savings, this program provides environmental restoration, climate resilience, green job opportunities, beautification, urban cooling effects, air quality improvements, and carbon sequestration to help mitigate the effects of climate change on the local environment. Program demand continues to outstrip the Department's existing financial allocations.

We urge the Bureau of Reclamation to consider LBUD's timely grant proposal, and thank you for your consideration.

Sincerely,

Wrigley Association

Our Mission: The Wrigley Association is a 501 C4 non-profit organization, (CA State ID # 1673284) whose mission is to promote the common interest, instill pride, establish and encourage the highest standards in Wrigley. To foster an active understanding of citizenship and civic responsibility. To oppose and discourage discrimination and to create a sense of belonging. To promote higher business standards and encourage uniformity and cooperation among merchants, property owners and residents. To eliminate crime, promote community pride, and develop wholesome, enjoyable, cultural, social, and physical activities.